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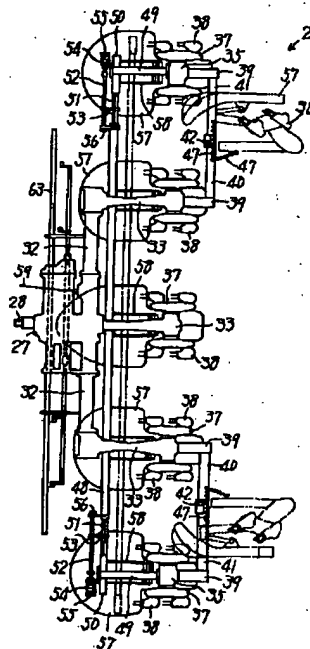
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(54) 【発明の名称】 苗植機

(57) 【要約】

【課題】 大型の苗植機は、横巾が狭い走行車体の後に、横巾が広い苗植装置を装着して、1行程で苗を多条に移植するように構成されている。そのため、苗植装置の横端が走行車体から著しく突出し、保管や輸送が不便である。

【解決手段】 苗載台29の外側部を苗載台29の上に折りたたみ、側部フレーム35を苗植フレーム33の上に折りたたむ構成とすると共に、苗植フレーム33の下部に設けられた深さ調節軸48及び側部フレーム35の下部に設けられた側部調節軸50、50の回動調節により上記複数のフロート57…の後端部と苗植フレーム33・側部フレーム35の間隔が変わって苗の植込み深さが調節され構成とし、該側部調節軸50、50を深さ調節軸48から分離できる構成にした苗植機。



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【特許請求の範囲】

【請求項 1】 走行車体 1 に、後部に植込み爪 38 が設けられた苗植フレーム 33 と該苗植フレーム 33 の左右側部に配置され後部に植込み爪 38 が設けられた側部フレーム 35 とを前上に傾斜した苗載台 29 の下方に設けると共に、苗植フレーム 33 及び側部フレーム 35 の下方に横に並べて複数のフロート 57…を設けた苗植装置 2 を装着した苗植機において、苗載台 29 の外側部を苗載台 29 の上に折りたたみ、側部フレーム 35 を苗植フレーム 33 の上に折りたたむ構成とすると共に、苗植フレーム 33 の下部に設けられた深さ調節軸 48 及び側部フレーム 35 の下部に設けられた側部調節軸 50、50 の回動調節により上記複数のフロート 57…の後端部と苗植フレーム 33・側部フレーム 35 の間隔が変わって苗の植込み深さが調節され構成とし、該側部調節軸 50、50 を深さ調節軸 48 から分離できる構成にしたことを特徴とする苗植機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 この発明は、1 行程で移植される苗の横巾が走行車体の横巾よりも広い苗植機に用いるものである。

【0002】

【従来の技術】 大型の苗植機は、横巾が狭い走行車体の後に、横巾が広い苗植装置を装着して、1 行程で苗を多条に移植するように構成されている。そのため、苗植装置の横端が走行車体から著しく突出し、保管や輸送が不便である。

【0003】

【発明が解決しようとする課題】 これを解消するため、種々の提案が行なわれているが、今なお充分でない。

【0004】

【課題を解決するための手段】 上記の課題を解決するため、この発明は、走行車体 1 に、後部に植込み爪 38 が設けられた苗植フレーム 33 と該苗植フレーム 33 の左右側部に配置され後部に植込み爪 38 が設けられた側部フレーム 35 とを前上に傾斜した苗載台 29 の下方に設けると共に、苗植フレーム 33 及び側部フレーム 35 の下方に横に並べて複数のフロート 57…を設けた苗植装置 2 を装着した苗植機において、苗載台 29 の外側部を苗載台 29 の上に折りたたみ、側部フレーム 35 を苗植フレーム 33 の上に折りたたむ構成とすると共に、苗植フレーム 33 の下部に設けられた深さ調節軸 48 及び側部フレーム 35 の下部に設けられた側部調節軸 50、50 の回動調節により上記複数のフロート 57…の後端部と苗植フレーム 33・側部フレーム 35 の間隔が変わって苗の植込み深さが調節され構成とし、該側部調節軸 50、50 を深さ調節軸 48 から分離できる構成にした苗植機としたものである。

【0005】 従って、苗植装置 2 の苗載台 29 及び側部

フレーム 35 を苗移植作業状態とし、側部調節軸 50、50 を深さ調節軸 48 に連結しておけば、苗植フレーム 33 と該苗植フレーム 33 の左右側部に配置された側部フレーム 35 の各後部に設けられた植込み爪 38 が苗載台 29 に載せた苗を圃場に移植して、1 行程で、走行車体 1 の横巾よりも著しく広い複数条の苗の移植作業が行える。また、深さ調節軸 48 をレバー操作で回動すると、深さ調節軸 48 と該深さ調節軸 48 に連結された側部調節軸 50、50 とが回動操作されて、フロート 57…の後端部と苗植フレーム 33・側部フレーム 35 の間隔が変わって苗の植込み深さが調節される。

【0006】 一方、この苗植機を倉庫に収納するときや移動させるときなどには、側部調節軸 50、50 を深さ調節軸 48 から分離して、苗載台 29 の外側部を苗載台 29 の上に折りたたみ、側部フレーム 35 を苗植フレーム 33 の上に折りたたむと、簡単に苗植装置 2 の横巾が狭くなって、上記の収納や移動などが簡便に行なわれる。

【0007】

【効果】 以上のように、この発明によると、側部調節軸 50、50 を深さ調節軸 48 から分離して、苗載台 29 の外側部と側部フレーム 35 とが、簡便に折りたたまれるので、使用しないときにコンパクトになって収納や移動などに好都合である。

【0008】

【実施例】 つぎに、この発明の実施例を説明する。走行車体 1 に苗植装置 2 が装着されて苗植機となっている。走行車体 1 がつぎのように構成されている。フレーム 3 の前後に主歯車箱 4 と後輪歯車箱 5 が設けられ、それぞれの外側に前輪 6、6 と後輪 7、7 が配置されている。エンジン 8 がフレーム 3 の上に設けられ、その動力が主歯車箱 4 内の変速機などを經由して前輪 6、6 と後輪 7、7 に伝わり、これらが水田の耕盤上で回転して走行車体 1 が進行するように出来ている。操縦席 9 がエンジン 8 の上に設けられ、その前のハンドルフレーム 10 の上にステアリングハンドル 11 が設けられ、これで前輪 6、6 が操舵されて走行車体 1 の進行方向が変わるようになっている。支柱 12、12 がハンドルフレーム 10 の両横に設けられ、それぞれに 5 個の棚 13、13、…が取り付けられている。それぞれの棚 13 には、広さが 30 cm×60 cm 程度の予備のマット苗（又はマット苗が入った苗箱）の 4 枚が前後左右に並んで載っている。また、それぞれの棚 13 は、左右が中央の軸の回りに回動して折りたたまれるように設けることができる。

【0009】 補助席 16 を、図 1、図 2 のように構成することができる。なお、これは要点ではないので、図 3 には記載していない。すなわち、支柱 14 が操縦席 9 の後でフレーム 3 から上に伸び、1 対のレール 15、15 が横長に固定されている。補助席 16 がレール 15、1

5に移動自在に取付けられている。ラック17がレール15、15の間に設けられ、補助席16に設けられたモータ18のピニオンがこれに咬んでいる。ステップ19が補助席16から後に突出し、その上にベタル20が取付けられている。そして、補助席16に乗った補助者が踏んでベタル20を左に傾けると、モータ18が回転して補助席16が左に移動し、ベタルを右に傾けるとモータ18が逆転して補助席16が右に移動するように出来ている。補助席16の上部のシート部を縦軸の回りに回転するように設けると、予備のマット苗を棚13から取

って後記の苗載台29に補給する動作が円滑に行なわれる。
【0010】支柱21がフレーム3の後部から上に伸び、上下に平行な1対のリンク22、22の前後の両端がこれと後の縦枠23に回転自在に取付けられている。油圧シリンダ24の前端がフレーム3に取付けられ、ピストンロッド25がこれから斜後上に伸び、上のリンク22と一体のアーム26の下端とその突端が接続している。そして、ポンプから吐出した油が昇降弁82(図9)の切り替えて油圧シリンダ24に供給されると、ピ

ストンロッド25が突出して縦枠23が上昇し、その油がタンクに戻ると、縦枠23が下降するようになっている。周知のように、この昇降弁82の作動は、操縦席9の左横の昇降レバーの操作で人為的行なわれるとともに、後記のセンサフロート57の作動で自動的にこなわれる。そして、昇降レバーの操作で縦枠23が下降し、センサフロート57が泥面に接触したのちは、センサフロート57の先端の上下動で自動的にこなわれる。
【0011】苗植装置2がつぎのように構成されている。苗植歯車箱27が縦枠23の下部にローリング軸28で揺動自在に取付けられている。前上に傾斜した苗載台29が苗植歯車箱27の上に配置されて左右に移動自在に取付けられている。この苗載台29は、前後方向の仕切壁で29-1、29-2、……29-10の10個に区画されてそれぞれに前記のマット苗が縦長に載るようになっている。また、この苗載台29は、区画29-2と29-3および29-8と29-9の接する壁板30-2、30-3、30-8、30-9が上に伸び、それぞれの上端が苗載台29の傾斜に沿った軸31、31で回転自在に設けられている。そして、使用しないとき、区画29-1、29-2および区画29-9、29-10が軸31、31の回りに180度回転して折りた

たまれるように出来ている(図3)。また、補助台29aがその前端に折りたたみ自在に取付けられている。
【0012】1対のスリーブ32、32が苗植歯車箱27の左右に固定され(図4、図5)、平行に設けた3本の苗植フレーム33、33、33がこれらから苗載台29の後端の下を通過して後に伸びている。断面がL型をした苗受板34が苗載台29の後端を塞ぐようにして苗植フレーム33、33、33に取付けられている。なお、

苗受板34の両横は、分割板34a、34aで構成されて内側の苗受板34に対して縦軸回りに回転(図3)又は着脱自在に設けられている。1対の側部フレーム35、35が左右の苗植フレーム33、33の後端部の外側に配置され、それぞれの横軸36、36……の両端に回転ケース37、37が固定されている。1対の植込み爪38、38がそれぞれの回転ケース37に設けられ、回転ケース37が横軸36で回されると、その中の遊星歯車により、同じような姿勢を保って旋回し、下降の初期に苗受板34又は分割板34a、34aの苗取口を通過して苗載台29から突出しているマット苗の端から1株分の苗欠き取り、下端で圃場に移植するようになって

いる。
【0013】支持フレーム39、39、……が左右の苗植フレーム33、33の後端と側部フレーム35、35から斜後上に突出している。対向している1対の支持フレーム39、39、……の上端から内スリーブ40、40および外スリーブ41、41が外向きおよび内向きに突出し、それぞれの端が、苗載台29の傾斜に沿った斜の軸42、42、……の回りに回転し、側部フレーム35、35が90度上に折りたたまれるようになっている。その詳細は、図6のように、外スリーブ41の内端に設けた段部41aが内スリーブ40の外端に嵌入するように設けられている。前記の軸42、42が内スリーブ40端に固定され、支持板43、43の内端部がこれに回転自在に取付けられている。支持板43、43の外端部の長孔43a、43a、……に通したボルト44、44、……で外スリーブ41が左右に移動できるように設けられ、フック45、45にリング46a、46aを掛けて止め具46、46を折りたたむと、支持板43、43が左に引き寄せられるように出来ている。そのため、止め具46、46を起してリング46a、46aをフック45、45から外し、外スリーブ41を外に引いて段部41aを内スリーブ40から外したのち、外スリーブ41又は側部フレーム35を引き上げる。すると、これらが軸42、42の回りに回転して折りたたまれる。元に戻すと、図6のようになって内スリーブ40と外スリーブ41が強固に固定されて一体化する。ばね47(図4)が内スリーブ40と外スリーブ41間に設けられ、折りたたまれた側部フレーム35、35がこれで引き寄せられてその姿勢を保つようになっている。

【0014】深さ調節軸48(図4)が苗植フレーム33の前端下腹部に取付けられ、オペレータのレバー(図示していない)操作で回転するようになっている。1対の補助フレーム49、49が側部フレーム35、35から前に突出し、軸心が前記の深さ調節軸48に重なった側部調節軸50、50がこれに回転自在に取付けられている。角軸51、51が側部調節軸50、50に左右に移動自在に取付けられ、内向きに移動すると、それぞれの内端が深さ調節軸48の外端に係合し、これと側部調

節軸50、50が合体するように出来ている。操作杆52、52が側部調節軸50、50に左右に移動自在に取付けられ、これと角軸51、51が連杆53、53で連結されている。操作杆52、52は、ばね54、54で外に引かれて、ノブ55、55で回されるように出来、それぞれの内端が、深さ調節軸48と一体のナット56、56にねじ込まれている。そのため、図4において、ノブ55を回してナット56から操作杆52を抜き離すと、この操作杆52がばね54で引かれて更に外に移動し、角軸51の内端が深さ調節軸48の外端から離れ、側部調節軸50が深さ調節軸48から分離する。なお、これを逆に操作すると、これらが図4のように合体する。側部フレーム33、33の前記の折りたたみは、これらを分離したのちに行なわれる。

【0015】横に並んだ5個のフロート57、57、…がそれぞれの苗植フレーム33、33、33および側部フレーム35、35の下に配置されている。深さ調節軸48および側部調節軸50、50からアーム58、58、…が斜後下に伸び、それぞれの突端とフロート57、57、…の後部が横軸で連結され、走行車体1が前進すると、その横軸回りに揺動しながら泥面を滑走するように出来ている。深さ調節軸48が回転すると、アーム58、58、…の後端が上下し、フロート57、57、…の後端部とフレーム33、33、33、35、35の間隔が変り、苗の植込み深さが調節される。中央のフロート57がセンサフロートとなり、これからの入力で、前記の昇降弁82が自動的に作動するように出来ている。

【0016】苗植装置2の動力伝達経路が図5のように構成されている。すなわち、エンジン8の動力が入力軸59から主軸60に伝わっている。その動力は、変速機61を経由してリードカム軸62に到達し、これの回転で横移動棒63が左右に往復移動し、苗載台29が左右に往復駆動されるように出来ている。歯輪64、64、64が主軸60に設けられ、苗植フレーム33、33、33の横軸36、36、36に歯輪65、65、65が固定され、対応するそれぞれの1対にチェン66、66、66が巻き掛けられている。その外側の横軸36、36に歯輪67、67が固定され、内スリーブ40、40内の内軸68、68の内端に歯輪69、69が固定され、対応するそれぞれの1対にチェン70、70が巻き掛けられている。ばね71、71で外側に押された爪72a、72aが内軸68、68の外端に設けられ、外スリーブ41、41内の外軸73、73に固定された爪72b、72bがこれに咬んでいる(図6)。爪72a、72aと爪72b、72bは、スリーブ41、41が外側に移動すると、その咬み合が離れる軸継手72、72に構成されている。歯輪74、74が外軸73、73の外端に固定され、外側の横軸36、36に歯輪75、75が固定され、対応するそれぞれの1対のチェン76、

76が巻き掛けられ、主軸60の回転でそれぞれの横軸36、36、…が、回転ケース37、37、…を、図1で反時計方向に回すように出来ている。

【0017】フロート57に抵抗杆77が、その先を泥土に突入させてモータ78で駆動されるように設けられている(図7、図8)。モータ78の電流値79が制御装置80に入力され、走行車体1から入力された車速値81の両者で、フロート57が泥走している泥土の硬軟を判断するようになっていく(図9)。制御装置80は、センサフロート57からの入力で昇降弁82に出力し、泥面を滑走しているセンサフロート57の先端が上り過ぎると、油圧シリンダ24に油を送って苗植装置2を上げ、その先端が下り過ぎると、油圧シリンダ24内の油をタンクに戻して苗植装置2を下げるように出来ている。そして、前記の泥土の硬軟の判断により、泥土が「硬い」と判断したときは、苗植装置2の昇降制度における感知感度が鈍感になり、泥土が「柔い」と判断したときは、逆に感知感度が敏感になるように、例えばセンサフロート57の前後傾斜の制御目標値を補正することができる。

【0018】図10、図11のように、外側の苗植フレーム33の後部に筒83を上向きに固定し、外スリーブ41を内側に延長して内端に筒84を下向きに固定し、筒83、84を回転自在に重ねて設ける。そして、苗植フレーム33内の回転を筒83、84内の歯車や軸などで側部フレーム35の横軸36に伝えるように構成する。すると、使用しないとき、外側の回転ケース37、37やフロート57などが、筒83の回りに回転し、図10の鎖線のように折りたたまれ、苗植装置2の横巾が狭くなる。

【図面の簡単な説明】

【図1】この発明を施した苗植機の側面図

【図2】その平面図

【図3】その苗植装置の両端を折りたたんだ平面図

【図4】その1部の平面図

【図5】その1部の伝動機構図

【図6】その1部の拡大した切断平面図

【図7】そのフロートの平面図

【図8】その平面図

【図9】その昇降装置のブロック回路図

【図10】他の苗植装置の1部の平面図

【図11】その側面図

【符号の説明】

1 走行車体

2 苗植装置

29 苗載台

33 苗植フレーム

35 側部フレーム

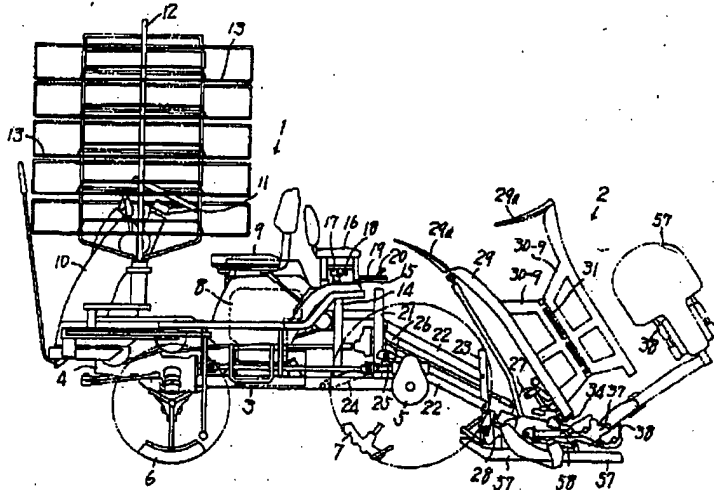
38 植込み爪

48 深さ調節軸

50 側部調節軸

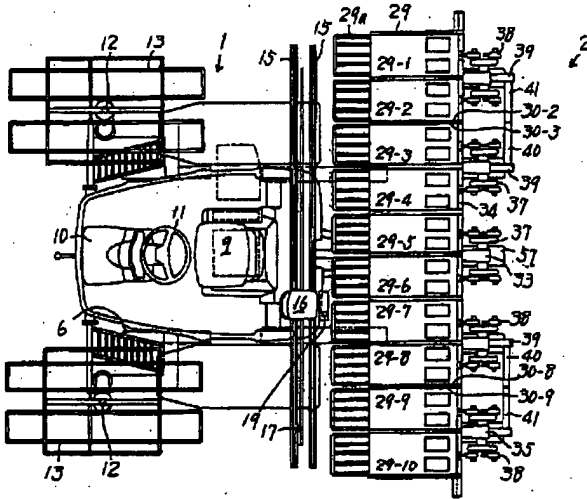
* * 57 フロート

【図1】

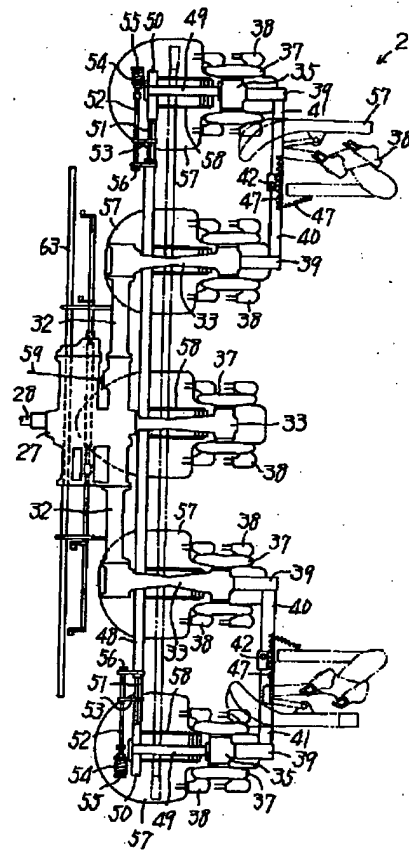
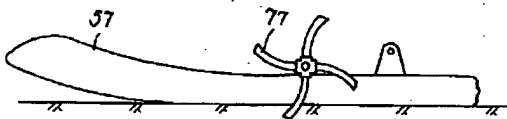


【図2】

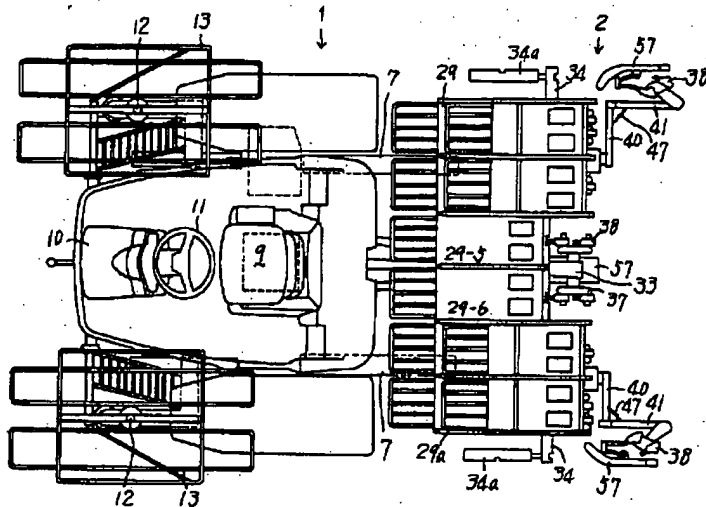
【図4】



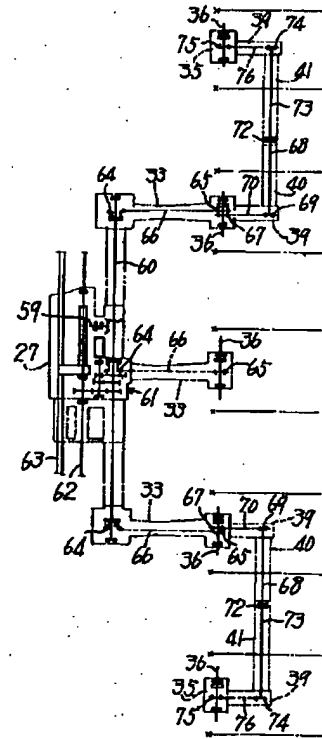
【図8】



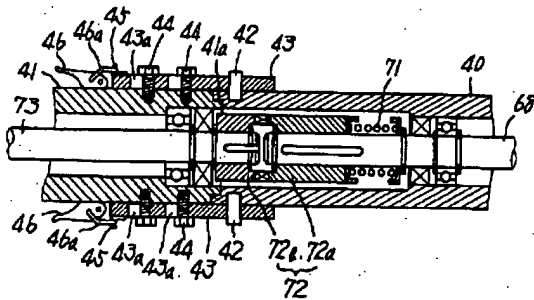
【図3】



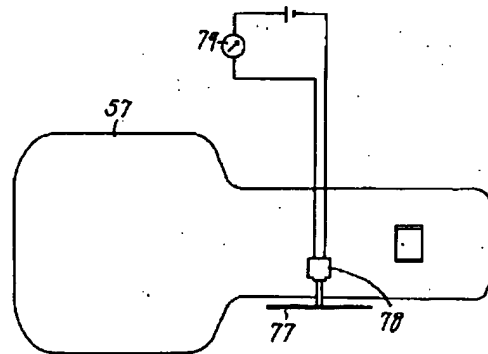
【図5】



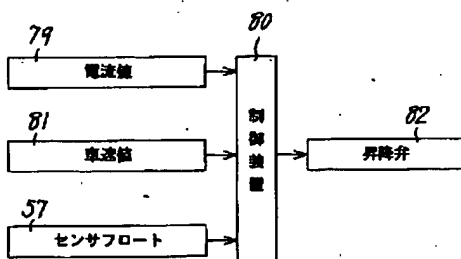
【図6】



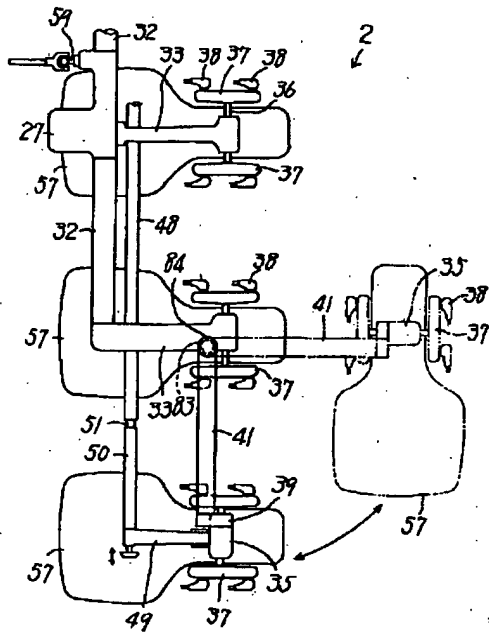
【図7】



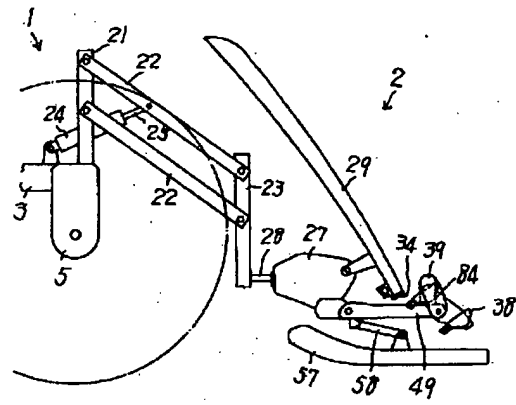
【図9】



【図10】



【図11】



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CLAIMS

[Claim(s)]

[Claim 1] While forming the flank frame 35 in which it has been arranged at the right-and-left flank of the seedling planting frame 33 and this seedling planting frame 33 which is planted in a posterior part, and by which the pawl 38 was formed in the transit car body 1, and planted in the posterior part, and the pawl 38 was formed down the seedling rest 29 which inclined in front going up In the machine for planting seedlings equipped with the equipment for planting seedlings 2 which arranged horizontally under the seedling planting frame 33 and the flank frame 35, and prepared two or more float 57 -- While considering as the configuration which folds up the lateral part of a seedling rest 29 on a seedling rest 29, and folds up folding and the flank frame 35 on the seedling planting frame 33 They are two or more above-mentioned floats 57 by rotation accommodation of the flank accommodation shafts 50 and 50 prepared in the lower part of the depth accommodation shaft 48 prepared in the lower part of the seedling planting frame 33, and the flank frame 35. -- Spacing of the back end section, and the seedling planting frame 33 and a flank frame 35 changes, and it considers as a configuration for the thicket depth of a seedling to be adjusted. The machine for planting seedlings characterized by making these flank accommodation shafts 50 and 50 a configuration separable from the depth accommodation shaft 48.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is used for a machine for planting seedlings with the horizontal width of the seedling transplanted by about one line larger than the horizontal width of a transit car body.

[0002]

[Description of the Prior Art] A large-sized machine for planting seedlings equips with equipment for planting seedlings with large horizontal width after a transit car body with narrow horizontal width, and it is constituted so that a seedling may be transplanted by about one line at multi-thread. Therefore, the horizontal edge of equipment for planting seedlings is remarkable from a transit car body, and a projection, storage, and transportation are inconvenient.

[0003]

[Problem(s) to be Solved by the Invention] Although various proposals are performed in order to cancel this, it is not still enough.

[0004]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, while this invention forms the flank frame 35 with which it has been arranged at the right-and-left flank of the seedling planting frame 33 and this seedling planting frame 33 in which it planted in the posterior part and the pawl 38 was formed, and planted in the posterior part, and the pawl 38 was formed in the transit car body 1 down the seedling rest 29 which inclined in front going up In the machine for planting seedlings equipped with the equipment for planting seedlings 2 which arranged horizontally under the seedling planting frame 33 and the flank frame 35, and prepared two or more float 57 -- While considering as the configuration which folds up the lateral part of a seedling rest 29 on a seedling rest 29, and folds up folding and the flank frame 35 on the seedling planting frame 33 They are two or more above-mentioned floats 57 by rotation accommodation of the flank accommodation shafts 50 and 50 prepared in the lower part of the depth accommodation shaft 48 prepared in the lower part of the seedling planting frame 33, and the flank frame 35. -- Spacing of the back end section, and the seedling planting frame 33 and a flank frame 35 changes, and it considers as a configuration for the thicket depth of a seedling to be adjusted. It considers as the machine for planting seedlings which made these flank accommodation shafts 50 and 50 the configuration separable from the depth accommodation shaft 48.

[0005] Therefore, if the seedling rest 29 and the flank frame 35 of equipment for planting seedlings 2 are made into a seedling transplantation working state and the flank accommodation shafts 50 and 50 are connected with the depth accommodation shaft 48 The seedling which was prepared in each posterior part of the flank frame 35 arranged at the right-and-left flank of the seedling planting frame 33 and this seedling planting frame 33 and which was planted and the pawl 38 put on the seedling rest 29 is transplanted to a field, and large transplantation of the seedling of two or more articles more remarkable than the horizontal width of the transit car body 1 can be performed by about one line. Moreover, when the depth accommodation shaft 48 is rotated by lever actuation, rotation actuation of the flank

accommodation shafts 50 and 50 connected with the depth accommodation shaft 48 and this depth accommodation shaft 48 is carried out, and it is float 57. -- Spacing of the back end section, and the seedling planting frame 33 and a flank frame 35 changes, and the thicket depth of a seedling is adjusted. [0006] On the other hand, if the flank accommodation shafts 50 and 50 are separated from the depth accommodation shaft 48, the lateral part of a seedling rest 29 is folded up on a seedling rest 29 and folding and the flank frame 35 are folded up on the seedling planting frame 33 when containing this machine for planting seedlings in a warehouse, or when making it move, the horizontal width of equipment for planting seedlings 2 will become narrow simply, and above-mentioned receipt, migration, etc. will be performed simple.

[0007]

[Effect] As mentioned above, since according to this invention the flank accommodation shafts 50 and 50 are separated from the depth accommodation shaft 48 and the lateral part and the flank frame 35 of a seedling rest 29 are folded up simple, when not using it, it becomes compact and is convenient to receipt, migration, etc.

[0008]

[Example] Below, the example of this invention is explained. The transit car body 1 is equipped with equipment for planting seedlings 2, and it has become a machine for planting seedlings. The transit car body 1 is constituted as follows. A main gear box 4 and the rear wheel gear box 5 are formed before and after a frame 3, and front wheels 6 and 6 and rear wheels 7 and 7 are arranged on each outside. An engine 8 is formed on a frame 3, propagation and these rotate [the power] on the plowsole of a paddy field to front wheels 6 and 6 and rear wheels 7 and 7 via the change gear in a main gear box 4 etc., and the transit car body 1 can advance. A cockpit 9 is formed on an engine 8, a steering handle 11 is formed on the handle frame 10 before that, front wheels 6 and 6 are steered now, and the travelling direction of the transit car body 1 changes. Stanchions 12 and 12 are formed beside [both] the handle frame 10, and five shelves 13 and 13 and are attached in each. Four sheets of the mat seedling (or seedling box containing a mat seedling) of the reserve whose size is about 30cmx60cm appear in each shelf 13 together with front and rear, right and left. Moreover, each shelf 13 can be formed so that right and left may rotate and may be folded up around a central shaft.

[0009] The auxiliary seat 16 can be constituted like drawing 1 and drawing 2 . In addition, since this is not the main point, it has not been indicated to drawing 3 . That is, elongation and one pair of rails 15 and 15 are being fixed for the stanchion 14 oblong upwards from the frame 3 after the cockpit 9. The auxiliary seat 16 is attached free [migration on rails 15 and 15]. The pinion of the motor 18 by which the rack 17 was formed among rails 15 and 15, and was prepared in the auxiliary seat 16 is in this by ****. Step 19 is attached in behind from the auxiliary seat 16, and the pedal 20 is attached a projection and on it. And if the auxiliary personnel who rode on the auxiliary seat 16 step on and a pedal 20 is leaned to the left, a motor 18 will rotate, the auxiliary seat 16 will move to the left, if a pedal is leaned to the right, a motor 18 is reversed and the auxiliary seat 16 can move to the right. If it prepares so that the sheet section of the upper part of the auxiliary seat 16 may be rotated around an axis of ordinate, actuation which takes a spare mat seedling from a shelf 13, and is supplied to the after-mentioned seedling rest 29 will be performed smoothly.

[0010] The stanchion 21 is attached upwards from the posterior part of a frame 3 free [the rotation to this and the next door post 23] for the both ends before and after elongation and one up and down parallel pair of links 22 and 22. The front end of an oil hydraulic cylinder 24 was attached in the frame 3, and elongation, and the upper link 22, lower limit, and tip of the arm 26 of one have connected [the piston rod 25] with slanting Gokami after this. And if a piston rod 25 will project, a door post 23 will go up, if the oil breathed out from the pump is supplied to an oil hydraulic cylinder 24 by the change of the rise-and-fall valve 82 (drawing 9 R> 9), and the oil returns to a tank, a door post 23 will descend. As everyone knows, actuation of this rise-and-fall valve 82 is automatically performed by actuation of the after-mentioned sensor float 57 while it is artificially performed by actuation of the rise-and-fall lever on the left of a cockpit 9. And after a door post 23 descends by actuation of a rise-and-fall lever and the sensor float 57 contacts a muddy surface, it is automatically carried out by vertical movement at the tip

the sensor float 57.

[0011] Equipment for planting seedlings 2 is constituted as follows. The seedling planting gear box 27 is attached in the lower part of a door post 23 free [rocking] with the rolling shaft 28. The seedling rest 29 which inclined in front going up is arranged on the seedling planting gear box 27, and is attached in right and left free [migration]. This seedling rest 29 is divided by ten of 29-1, 29-2, ..., 29-10 with the bridge wall of a cross direction, and the aforementioned mat seedling appears in each longwise.

Moreover, this seedling rest 29 is formed free [rotation] with the shafts 31 and 31 with which the wall board 30-2 with which 29-9 touches a partition 29-2, 29-3, and 29-8, 30-3, 30-8, and 30-9 met elongation upwards, and each upper limit met the inclination of a seedling rest 29. And when not using it, around shafts 31 and 31, a partition 29-1, 29-2 and a partition 29-9, and 29-10 rotate 180 degrees, and can be folded up (drawing 3). Moreover, auxiliary base 29a is attached in the front end free [folding].

[0012] One pair of sleeves 32 and 32 were fixed to right and left of the seedling planting gear box 27 (drawing 4 , drawing 5), and three seedling planting frames 33, 33, and 33 prepared in parallel are behind extended through the bottom of the back end of a seedling rest 29 from these. As the seedling supporting plate 34 with which the cross section carried out the L type plugs up the back end of a seedling rest 29, it is attached in the seedling planting frames 33, 33, and 33. In addition, both the sides of the seedling supporting plate 34 consist of pass partition plates 34a and 34a, and are prepared in the circumference of an axis of ordinate free [rotation (drawing 3) or attachment and detachment] to the inside seedling supporting plate 34. One pair of flank frames 35 and 35 are arranged on the outside of the back end section of the seedling planting frames 33 and 33 on either side, and it is each axis of abscissa 36 and 36.... The rotation cases 37 and 37 are being fixed to both ends. If one pair of thicket pawls 38 and 38 are formed in each rotation case 37 and the rotation case 37 is turned by the axis of abscissa 36, by the epicyclic gear in it, the same posture will be maintained, and it will circle, and will transplant to a field in ***** picking for one share, and a lower limit from the edge of the mat seedling which passed ***** of the seedling supporting plate 34 or pass partition plates 34a and 34a in early stages of descent, and has been projected from the seedling rest 29.

[0013] It has projected to slanting Gokami from the support frames 39 and 39, and the back end of the seedling planting frames 33 and 33 and the flank frames 35 and 35 of right and left of It rotates one pair of support frames 39 and 39 which have countered, the slanting shafts 42 and 42 of with which the inner sleeves 40 and 40 and the outside sleeves 41 and 41 met outwardness and the inside sense from upper limit, and a projection and each edge met the inclination of a seedling rest 29, and around ..., and the flank frames 35 and 35 are folded up on 90 degrees. The detail is established so that step 41a prepared in the inner edge of the outside sleeve 41 may insert in the outer edge of the inner sleeve 40 like drawing 6 . The aforementioned shafts 42 and 42 are fixed to inner sleeve 40 edge, and the toe of support plates 43 and 43 is attached in this free [rotation]. It is prepared so that the outside sleeve 41 can move to right and left by the long holes 43a and 43a of the heel of support plates 43 and 43, the bolts 44 and 44 which it let pass to, and .., and if Rings 46a and 46a are hung on hooks 45 and 45 and stops 46 and 46 are folded up, support plates 43 and 43 can be making it possible to draw near to the left. Therefore, after starting stops 46 and 46, removing Rings 46a and 46a from hooks 45 and 45, lengthening the outside sleeve 41 outside and removing step 41a from the inner sleeve 40, the outside sleeve 41 or the flank frame 35 is pulled up. Then, around shafts 42 and 42, these rotate and are folded up. If it returns, it becomes like drawing 6 , and it will be fixed firmly and the inner sleeve 40 and the outside sleeve 41 will unify. A spring 47 (drawing 4) is formed between the inner sleeve 40 and the outside sleeve 41, and the folded-up flank frames 35 and 35 can draw near now, and maintain the posture.

[0014] The depth accommodation shaft 48 (drawing 4) is attached in the front end hypogastrium of the seedling planting frame 33, and rotates by lever (not shown) actuation of an operator. The flank accommodation shafts 50 and 50 with which one pair of pilot flames 49 and 49 lapped with the projection and the depth accommodation shaft 48 of the above [an axial center] before from the flank frames 35 and 35 are attached in this free [rotation]. If square axes 51 and 51 are attached in the flank accommodation shafts 50 and 50 free [migration right and left] and move to the inner sense, each inner

edge engages with the outer edge of the depth accommodation shaft 48, and this and the flank accommodation shafts 50 and 50 can coalesce. Control columns 52 and 52 are attached in the flank accommodation shafts 50 and 50 free [migration right and left], and square axes 51 and 51 are connected with this with linkages 53 and 53. Control columns 52 and 52 are lengthened outside with springs 54 and 54, it can be turned by knobs 55 and 55, and each inner edge is thrust into the depth accommodation shaft 48 and the nuts 56 and 56 of one. Therefore, in drawing 4 , if a knob 55 is turned and a control column 52 is left behind from a nut 56, this control column 52 will be lengthened with a spring 54, it will move outside further, the inner edge of a square axis 51 will separate from the outer edge of the depth accommodation shaft 48, and the flank accommodation shaft 50 will dissociate from the depth accommodation shaft 48. In addition, if this is operated conversely, these will coalesce like drawing 4 . The aforementioned folding of the flank frames 33 and 33 is performed after separating these.

[0015] Five floats 57 and 57 and which were horizontally located in a line are arranged under each seedling planting frame 33, 33, and 33 and the flank frames 35 and 35. If the posterior part of elongation, each tip, floats 57 and 57, and .. is connected with the bottom of after slant for arms 58 and 58 and by the axis of abscissa from the depth accommodation shaft 48 and the flank accommodation shafts 50 and 50 and the transit car body 1 moves forward, it can glide over a muddy surface, rocking to the circumference of the axis of abscissa. If the depth accommodation shaft 48 rotates, spacing of taking up and down, floats 57 and 57, and the back end section and the frames 33, 33, 33, 35, and 35 of .. will change arms 58 and 58 and the back end of .., and the thicket depth of a seedling will be adjusted. The central float 57 turns into a sensor float, and the aforementioned rise-and-fall valve 82 can operate automatically in a future input.

[0016] The power transfer path of equipment for planting seedlings 2 is constituted like drawing 5 . That is, the power of an engine 8 is transmitted from the input shaft 59 to the main shaft 60. The power reaches the lead cam shaft 62 via a change gear 61, the horizontal migration rod 63 carries out both-way migration by rotation of this at right and left, and the both-way drive of the seedling rest 29 can be carried out at right and left. Gears 64, 64, and 64 are formed in a main shaft 60, gears 65, 65, and 65 are fixed to the axes of abscissa 36, 36, and 36 of the seedling planting frames 33, 33, and 33, and chains 66, 66, and 66 are almost wound around each one corresponding pair. Gears 67 and 67 are fixed to the axes of abscissa 36 and 36 of the outside, gears 69 and 69 are fixed to the inner edge of the inner sleeve 40 and the inner shafts 68 and 68 in 40, and chains 70 and 70 are almost wound around each one corresponding pair. The pawls 72a and 72a pushed outside with springs 71 and 71 are formed in the outer edge of the inner shafts 68 and 68, and the outside sleeve 41 and the pawls 72b and 72b fixed to shafts 73 and 73 the outside in 41 are in this by **** (drawing 6). Pawls 72a and 72a and Pawls 72b and 72b are constituted by the shaft couplings 72 and 72 which the ***** leaves if sleeves 41 and 41 move outside. Gears 74 and 74 are fixed to the outer edge of the outside shafts 73 and 73, gears 75 and 75 are fixed to the outside axes of abscissa 36 and 36, one pair of each corresponding chains 76 and 76 are rolled almost, and each axis of abscissa 36 and 36 and can turn the rotation cases 37 and 37 and .. counterclockwise by drawing 1 by rotation of a main shaft 60.

[0017] It is prepared so that the resistance lever 77 may make the point rush into mud and may drive by the motor 78 in float 57 (drawing 7 , drawing 8). It judges hard and soft [of the mud which the float 57 is ****(ing)] in both of the vehicle speed value 81 by whom the current value 79 of a motor 78 was inputted into the control unit 80, and was inputted from the transit car body 1 (drawing 9). If it outputs to the rise-and-fall valve 82 in the input from the sensor float 57, an oil will be sent to an oil hydraulic cylinder 24, equipment for planting seedlings 2 will be raised, if the tip of the sensor float 57 which is gliding over a muddy surface goes up too much, and the tip gets down too much, a control unit 80 returns the oil in an oil hydraulic cylinder 24 to a tank, and can lower equipment for planting seedlings 2. And when the sensing sensibility in the rise-and-fall system of equipment for planting seedlings 2 becomes insensible when mud judges "it is hard", and mud judges "it is frail" by hard and soft decision of the aforementioned mud, the control-objectives value of the inclination before and after the sensor float 57 can be amended so that sensing sensibility may become sensitive conversely.

[0018] Like drawing 10 and drawing 11 , a cylinder 83 is fixed upward to the posterior part of the outside seedling planting frame 33, the outside sleeve 41 is extended inside, it fixes downward and a cylinder 84 is formed for cylinders 83 and 84 in an inner edge in piles, enabling free rotation. And it constitutes so that the rotation in the seedling planting frame 33 may be told to the axis of abscissa 36 of the flank frame 35 with a cylinder 83, a gearing, a shaft in 84, etc. Then, when not using it, the outside rotation cases 37 and 37, float 57, etc. rotate around a cylinder 83, it is folded up like the chain line of drawing 1010 , and the horizontal width of equipment for planting seedlings 2 becomes narrow.

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TECHNICAL FIELD

[Field of the Invention] This invention is used for a machine for planting seedlings with the horizontal width of the seedling transplanted by about one line larger than the horizontal width of a transit car body.

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PRIOR ART

[Description of the Prior Art] A large-sized machine for planting seedlings equips with equipment for planting seedlings with large horizontal width after a transit car body with narrow horizontal width, and it is constituted so that a seedling may be transplanted by about one line at multi-thread. Therefore, the horizontal edge of equipment for planting seedlings is remarkable from a transit car body, and a projection, storage, and transportation are inconvenient.

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EFFECT OF THE INVENTION

[Effect] As mentioned above, since according to this invention the flank accommodation shafts 50 and 50 are separated from the depth accommodation shaft 48 and the lateral part and the flank frame 35 of a seedling rest 29 are folded up simple, when not using it, it becomes compact and is convenient to receipt, migration, etc.

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TECHNICAL PROBLEM

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MEANS

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, while this invention forms the flank frame 35 with which it has been arranged at the right-and-left flank of the seedling planting frame 33 and this seedling planting frame 33 in which it planted in the posterior part and the pawl 38 was formed, and planted in the posterior part, and the pawl 38 was formed in the transit car body 1 down the seedling rest 29 which inclined in front going up In the machine for planting seedlings equipped with the equipment for planting seedlings 2 which arranged horizontally under the seedling planting frame 33 and the flank frame 35, and prepared two or more float 57 -- While considering as the configuration which folds up the lateral part of a seedling rest 29 on a seedling rest 29, and folds up folding and the flank frame 35 on the seedling planting frame 33 They are two or more above-mentioned floats 57 by rotation accommodation of the flank accommodation shafts 50 and 50 prepared in the lower part of the depth accommodation shaft 48 prepared in the lower part of the seedling planting frame 33, and the flank frame 35. -- Spacing of the back end section, and the seedling planting frame 33 and a flank frame 35 changes, and it considers as a configuration for the thicket depth of a seedling to be adjusted. It considers as the machine for planting seedlings which made these flank accommodation shafts 50 and 50 the configuration separable from the depth accommodation shaft 48. [0005] Therefore, if the seedling rest 29 and the flank frame 35 of equipment for planting seedlings 2 are made into a seedling transplantation working state and the flank accommodation shafts 50 and 50 are connected with the depth accommodation shaft 48 The seedling which was prepared in each posterior part of the flank frame 35 arranged at the right-and-left flank of the seedling planting frame 33 and this seedling planting frame 33 and which was planted and the pawl 38 put on the seedling rest 29 is transplanted to a field, and large transplantation of the seedling of two or more articles more remarkable than the horizontal width of the transit car body 1 can be performed by about one line. Moreover, when the depth accommodation shaft 48 is rotated by lever actuation, rotation actuation of the flank accommodation shafts 50 and 50 connected with the depth accommodation shaft 48 and this depth accommodation shaft 48 is carried out, and it is float 57. -- Spacing of the back end section, and the seedling planting frame 33 and a flank frame 35 changes, and the thicket depth of a seedling is adjusted. [0006] On the other hand, if the flank accommodation shafts 50 and 50 are separated from the depth accommodation shaft 48, the lateral part of a seedling rest 29 is folded up on a seedling rest 29 and folding and the flank frame 35 are folded up on the seedling planting frame 33 when containing this machine for planting seedlings in a warehouse, or when making it move, the horizontal width of equipment for planting seedlings 2 will become narrow simply, and above-mentioned receipt, migration, etc. will be performed simple.

[Translation done.]

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EXAMPLE

[Example] Below, the example of this invention is explained. The transit car body 1 is equipped with equipment for planting seedlings 2, and it has become a machine for planting seedlings. The transit car body 1 is constituted as follows. A main gear box 4 and the rear wheel gear box 5 are formed before and after a frame 3, and front wheels 6 and 6 and rear wheels 7 and 7 are arranged on each outside. An engine 8 is formed on a frame 3, propagation and these rotate [the power] on the plowsole of a paddy field to front wheels 6 and 6 and rear wheels 7 and 7 via the change gear in a main gear box 4 etc., and the transit car body 1 can advance. A cockpit 9 is formed on an engine 8, a steering handle 11 is formed on the handle frame 10 before that, front wheels 6 and 6 are steered now, and the travelling direction of the transit car body 1 changes. Stanchions 12 and 12 are formed beside [both] the handle frame 10, and five shelves 13 and 13 and are attached in each. Four sheets of the mat seedling (or seedling box containing a mat seedling) of the reserve whose size is about 30cmx60cm appear in each shelf 13 together with front and rear, right and left. Moreover, each shelf 13 can be formed so that right and left may rotate and may be folded up around a central shaft.

[0009] The auxiliary seat 16 can be constituted like drawing 1 and drawing 2 . In addition, since this is not the main point, it has not been indicated to drawing 3 . That is, elongation and one pair of rails 15 and 15 are being fixed for the stanchion 14 oblong upwards from the frame 3 after the cockpit 9. The auxiliary seat 16 is attached free [migration on rails 15 and 15]. The pinion of the motor 18 by which the rack 17 was formed among rails 15 and 15, and was prepared in the auxiliary seat 16 is in this by ****. Step 19 is attached in behind from the auxiliary seat 16, and the pedal 20 is attached a projection and on it. And if the auxiliary personnel who rode on the auxiliary seat 16 step on and a pedal 20 is leaned to the left, a motor 18 will rotate, the auxiliary seat 16 will move to the left, if a pedal is leaned to the right, a motor 18 is reversed and the auxiliary seat 16 can move to the right. If it prepares so that the sheet section of the upper part of the auxiliary seat 16 may be rotated around an axis of ordinate, actuation which takes a spare mat seedling from a shelf 13, and is supplied to the after-mentioned seedling rest 29 will be performed smoothly.

[0010] The stanchion 21 is attached upwards from the posterior part of a frame 3 free [the rotation to this and the next door post 23] for the both ends before and after elongation and one up and down parallel pair of links 22 and 22. The front end of an oil hydraulic cylinder 24 was attached in the frame 3, and elongation, and the upper link 22, lower limit, and tip of the arm 26 of one have connected [the piston rod 25] with slanting Gokami after this. And if a piston rod 25 will project, a door post 23 will go up, if the oil breathed out from the pump is supplied to an oil hydraulic cylinder 24 by the change of the rise-and-fall valve 82 (drawing 9 R> 9), and the oil returns to a tank, a door post 23 will descend. As everyone knows, actuation of this rise-and-fall valve 82 is automatically performed by actuation of the after-mentioned sensor float 57 while it is artificially performed by actuation of the rise-and-fall lever on the left of a cockpit 9. And after a door post 23 descends by actuation of a rise-and-fall lever and the sensor float 57 contacts a muddy surface, it is automatically carried out by vertical movement at the tip the sensor float 57.

[0011] Equipment for planting seedlings 2 is constituted as follows. The seedling planting gear box 27 is

attached in the lower part of a door post 23 free [rocking] with the rolling shaft 28. The seedling rest 29 which inclined in front going up is arranged on the seedling planting gear box 27, and is attached in right and left free [migration]. This seedling rest 29 is divided by ten of 29-1, 29-2,29-10 with the bridge wall of a cross direction, and the aforementioned mat seedling appears in each longwise. Moreover, this seedling rest 29 is formed free [rotation] with the shafts 31 and 31 with which the wall board 30-2 with which 29-9 touches a partition 29-2, 29-3, and 29-8, 30-3, 30-8, and 30-9 met elongation upwards, and each upper limit met the inclination of a seedling rest 29. And when not using it, around shafts 31 and 31, a partition 29-1, 29-2 and a partition 29-9, and 29-10 rotate 180 degrees, and can be folded up (drawing 3). Moreover, auxiliary base 29a is attached in the front end free [folding]. [0012] One pair of sleeves 32 and 32 were fixed to right and left of the seedling planting gear box 27 (drawing 4 , drawing 5), and three seedling planting frames 33, 33, and 33 prepared in parallel are behind extended through the bottom of the back end of a seedling rest 29 from these. As the seedling supporting plate 34 with which the cross section carried out the L type plugs up the back end of a seedling rest 29, it is attached in the seedling planting frames 33, 33, and 33. In addition, both the sides of the seedling supporting plate 34 consist of pass partition plates 34a and 34a, and are prepared in the circumference of an axis of ordinate free [rotation (drawing 3) or attachment and detachment] to the inside seedling supporting plate 34. One pair of flank frames 35 and 35 are arranged on the outside of the back end section of the seedling planting frames 33 and 33 on either side, and it is each axis of abscissa 36 and 36.... The rotation cases 37 and 37 are being fixed to both ends. If one pair of thicket pawls 38 and 38 are formed in each rotation case 37 and the rotation case 37 is turned by the axis of abscissa 36, by the epicyclic gear in it, the same posture will be maintained, and it will circle, and will transplant to a field in ***** picking for one share, and a lower limit from the edge of the mat seedling which passed ***** of the seedling supporting plate 34 or pass partition plates 34a and 34a in early stages of descent, and has been projected from the seedling rest 29.

[0013] It has projected to slanting Gokami from the support frames 39 and 39, and the back end of the seedling planting frames 33 and 33 and the flank frames 35 and 35 of right and left of It rotates one pair of support frames 39 and 39 which have countered, the slanting shafts 42 and 42 of with which the inner sleeves 40 and 40 and the outside sleeves 41 and 41 met outwardness and the inside sense from upper limit, and a projection and each edge met the inclination of a seedling rest 29, and around .., and the flank frames 35 and 35 are folded up on 90 degrees. The detail is established so that step 41a prepared in the inner edge of the outside sleeve 41 may insert in the outer edge of the inner sleeve 40 like drawing 6 . The aforementioned shafts 42 and 42 are fixed to inner sleeve 40 edge, and the toe of support plates 43 and 43 is attached in this free [rotation]. It is prepared so that the outside sleeve 41 can move to right and left by the long holes 43a and 43a of the heel of support plates 43 and 43, the bolts 44 and 44 which it let pass to, and .., and if Rings 46a and 46a are hung on hooks 45 and 45 and stops 46 and 46 are folded up, support plates 43 and 43 can be making it possible to draw near to the left. Therefore, after starting stops 46 and 46, removing Rings 46a and 46a from hooks 45 and 45, lengthening the outside sleeve 41 outside and removing step 41a from the inner sleeve 40, the outside sleeve 41 or the flank frame 35 is pulled up. Then, around shafts 42 and 42, these rotate and are folded up. If it returns, it becomes like drawing 6 , and it will be fixed firmly and the inner sleeve 40 and the outside sleeve 41 will unify. A spring 47 (drawing 4) is formed between the inner sleeve 40 and the outside sleeve 41, and the folded-up flank frames 35 and 35 can draw near now, and maintain the posture.

[0014] The depth accommodation shaft 48 (drawing 4) is attached in the front end hypogastrium of the seedling planting frame 33, and rotates by lever (not shown) actuation of an operator. The flank accommodation shafts 50 and 50 with which one pair of pilot flames 49 and 49 lapped with the projection and the depth accommodation shaft 48 of the above [an axial center] before from the flank frames 35 and 35 are attached in this free [rotation]. If square axes 51 and 51 are attached in the flank accommodation shafts 50 and 50 free [migration right and left] and move to the inner sense, each inner edge engages with the outer edge of the depth accommodation shaft 48, and this and the flank accommodation shafts 50 and 50 can coalesce. Control columns 52 and 52 are attached in the flank

accommodation shafts 50 and 50 free [migration right and left], and square axes 51 and 51 are connected with this with linkages 53 and 53. Control columns 52 and 52 are lengthened outside with springs 54 and 54, it can be turned by knobs 55 and 55, and each inner edge is thrust into the depth accommodation shaft 48 and the nuts 56 and 56 of one. Therefore, in drawing 4 , if a knob 55 is turned and a control column 52 is left behind from a nut 56, this control column 52 will be lengthened with a spring 54, it will move outside further, the inner edge of a square axis 51 will separate from the outer edge of the depth accommodation shaft 48, and the flank accommodation shaft 50 will dissociate from the depth accommodation shaft 48. In addition, if this is operated conversely, these will coalesce like drawing 4 . The aforementioned folding of the flank frames 33 and 33 is performed after separating these.

[0015] Five floats 57 and 57 and which were horizontally located in a line are arranged under each seedling planting frame 33, 33, and 33 and the flank frames 35 and 35. If the posterior part of elongation, each tip, floats 57 and 57, and .. is connected with the bottom of after slant for arms 58 and 58 and by the axis of abscissa from the depth accommodation shaft 48 and the flank accommodation shafts 50 and 50 and the transit car body 1 moves forward, it can glide over a muddy surface, rocking to the circumference of the axis of abscissa. If the depth accommodation shaft 48 rotates, spacing of taking up and down, floats 57 and 57, and the back end section and the frames 33, 33, 33, 35, and 35 of .. will change arms 58 and 58 and the back end of .., and the thicket depth of a seedling will be adjusted. The central float 57 turns into a sensor float, and the aforementioned rise-and-fall valve 82 can operate automatically in a future input.

[0016] The power transfer path of equipment for planting seedlings 2 is constituted like drawing 5 . That is, the power of an engine 8 is transmitted from the input shaft 59 to the main shaft 60. The power reaches the lead cam shaft 62 via a change gear 61, the horizontal migration rod 63 carries out both-way migration by rotation of this at right and left, and the both-way drive of the seedling rest 29 can be carried out at right and left. Gears 64, 64, and 64 are formed in a main shaft 60, gears 65, 65, and 65 are fixed to the axes of abscissa 36, 36, and 36 of the seedling planting frames 33, 33, and 33, and chains 66, 66, and 66 are almost wound around each one corresponding pair. Gears 67 and 67 are fixed to the axes of abscissa 36 and 36 of the outside, gears 69 and 69 are fixed to the inner edge of the inner sleeve 40 and the inner shafts 68 and 68 in 40, and chains 70 and 70 are almost wound around each one corresponding pair. The pawls 72a and 72a pushed outside with springs 71 and 71 are formed in the outer edge of the inner shafts 68 and 68, and the outside sleeve 41 and the pawls 72b and 72b fixed to shafts 73 and 73 the outside in 41 are in this by **** (drawing 6). Pawls 72a and 72a and Pawls 72b and 72b are constituted by the shaft couplings 72 and 72 which the ***** leaves if sleeves 41 and 41 move outside. Gears 74 and 74 are fixed to the outer edge of the outside shafts 73 and 73, gears 75 and 75 are fixed to the outside axes of abscissa 36 and 36, one pair of each corresponding chains 76 and 76 are rolled almost, and each axis of abscissa 36 and 36 and can turn the rotation cases 37 and 37 and .. counterclockwise by drawing 1 by rotation of a main shaft 60.

[0017] It is prepared so that the resistance lever 77 may make the point rush into mud and may drive by the motor 78 in float 57 (drawing 7 , drawing 8). It judges hard and soft [of the mud which the float 57 is ****(ing)] in both of the vehicle speed value 81 by whom the current value 79 of a motor 78 was inputted into the control unit 80, and was inputted from the transit car body 1 (drawing 9). If it outputs to the rise-and-fall valve 82 in the input from the sensor float 57, an oil will be sent to an oil hydraulic cylinder 24, equipment for planting seedlings 2 will be raised, if the tip of the sensor float 57 which is gliding over a muddy surface goes up too much, and the tip gets down too much, a control unit 80 returns the oil in an oil hydraulic cylinder 24 to a tank, and can lower equipment for planting seedlings 2. And when the sensing sensibility in the rise-and-fall system of equipment for planting seedlings 2 becomes insensible when mud judges "it is hard", and mud judges "it is frail" by hard and soft decision of the aforementioned mud, the control-objectives value of the inclination before and after the sensor float 57 can be amended so that sensing sensibility may become sensitive conversely.

[0018] Like drawing 10 and drawing 11 , a cylinder 83 is fixed upward to the posterior part of the outside seedling planting frame 33, the outside sleeve 41 is extended inside, it fixes downward and a

cylinder 84 is formed for cylinders 83 and 84 in an inner edge in piles, enabling free rotation. And it constitutes so that the rotation in the seedling planting frame 33 may be told to the axis of abscissa 36 of the flank frame 35 with a cylinder 83, a gearing, a shaft in 84, etc. Then, when not using it, the outside rotation cases 37 and 37, float 57, etc. rotate around a cylinder 83, it is folded up like the chain line of drawing 1010 , and the horizontal width of equipment for planting seedlings 2 becomes narrow.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The side elevation of the machine for planting seedlings which gave this invention

[Drawing 2] The top view

[Drawing 3] The top view which folded up the both ends of the equipment for planting seedlings

[Drawing 4] The top view of the one section

[Drawing 5] The driving mechanism Fig. of the one section

[Drawing 6] The cutting top view which the one section expanded

[Drawing 7] The top view of the float

[Drawing 8] The top view

[Drawing 9] The block circuit diagram of the lifting device

[Drawing 10] The top view of the one section of other equipment for planting seedlings

[Drawing 11] The side elevation

[Description of Notations]

1 Transit Car Body

2 Equipment for Planting Seedlings

29 Seedling Rest

33 Seedling Planting Frame

35 Flank Frame

38 Thicket Pawl

48 Depth Accommodation Shaft

50 Flank Accommodation Shaft

57 Float

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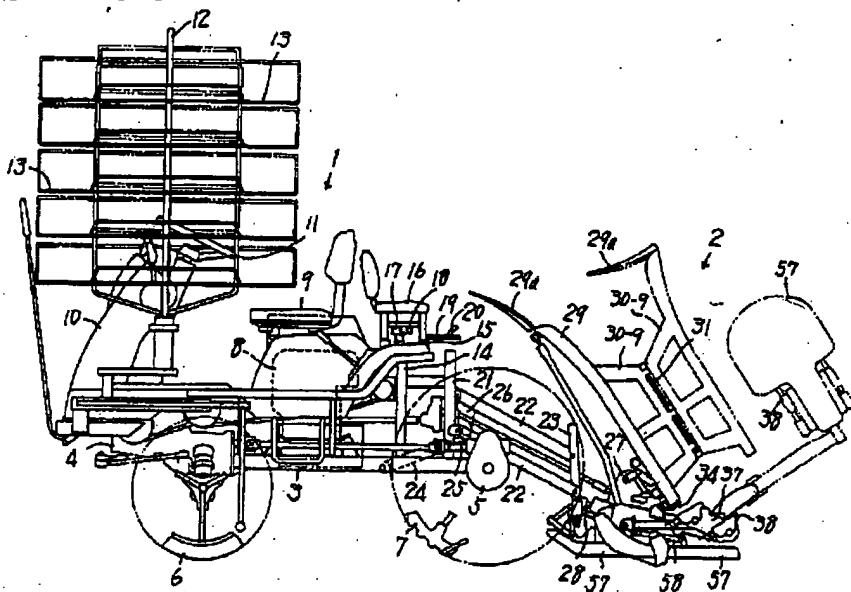
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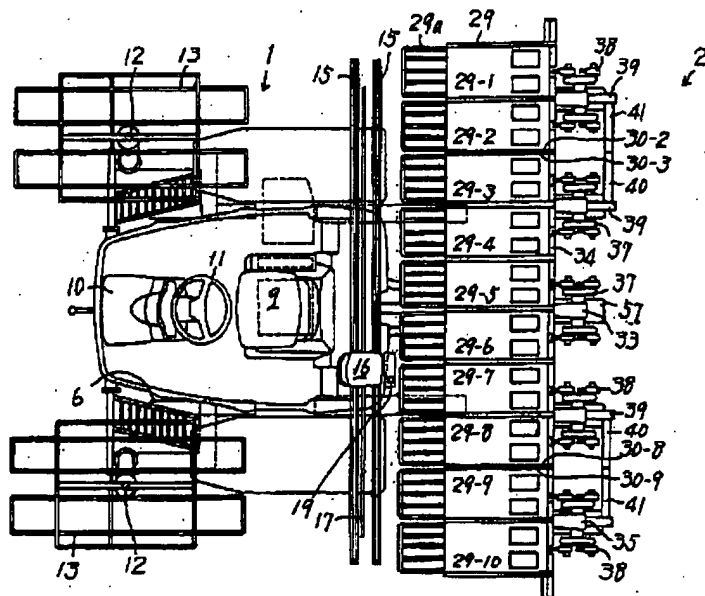
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DRAWINGS

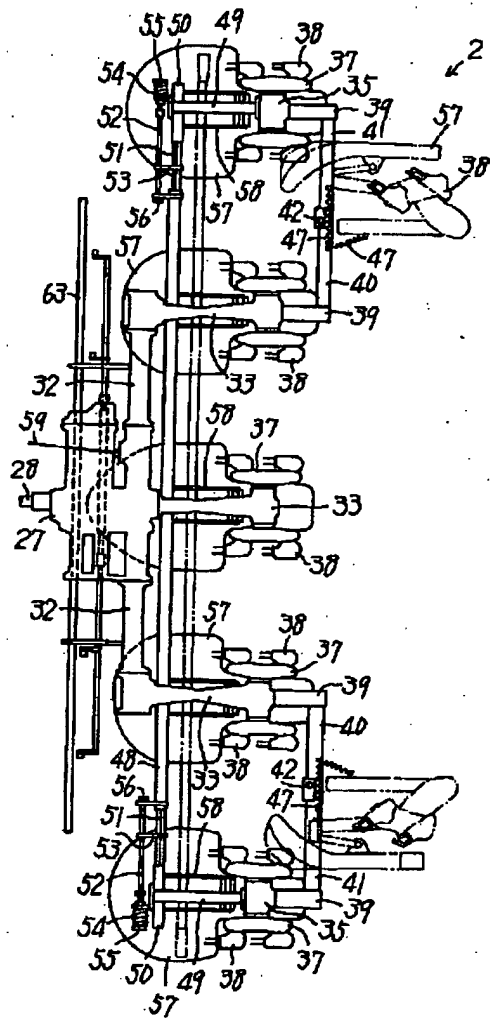
[Drawing 1]



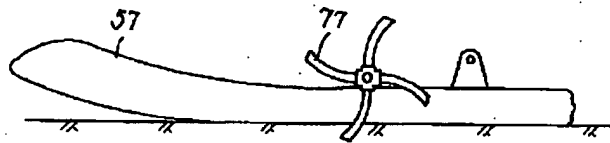
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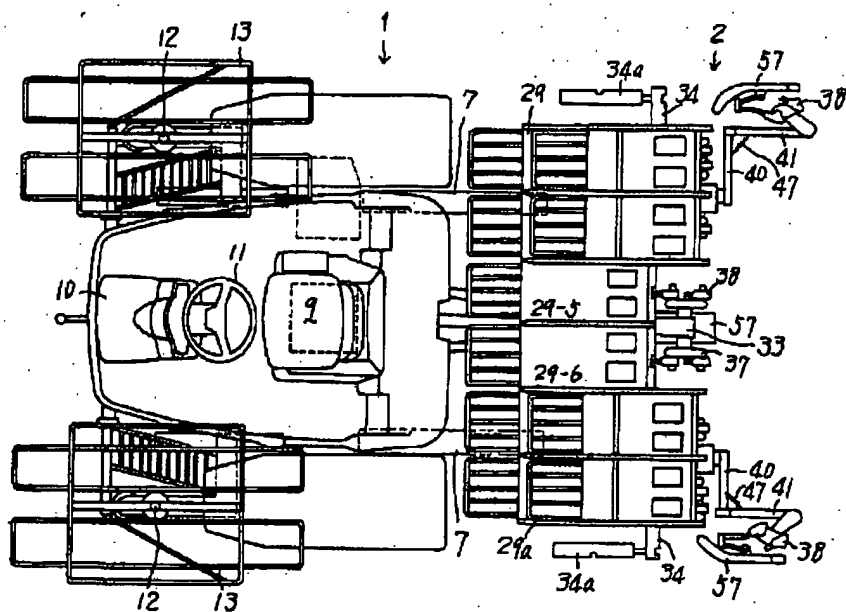
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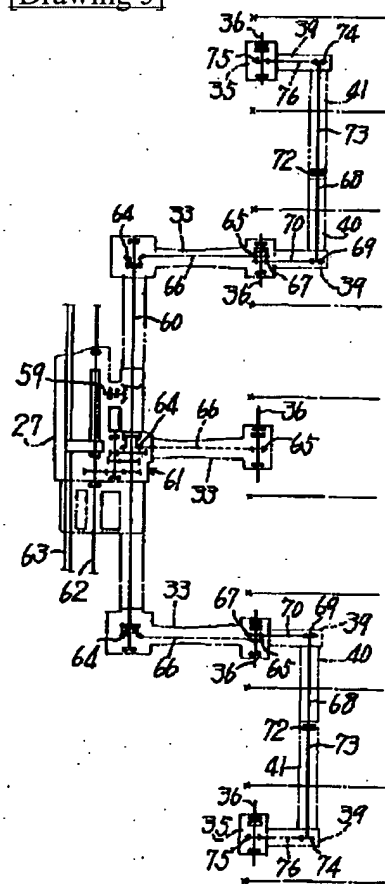
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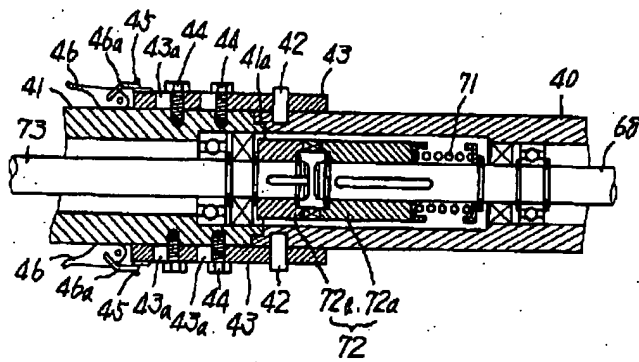
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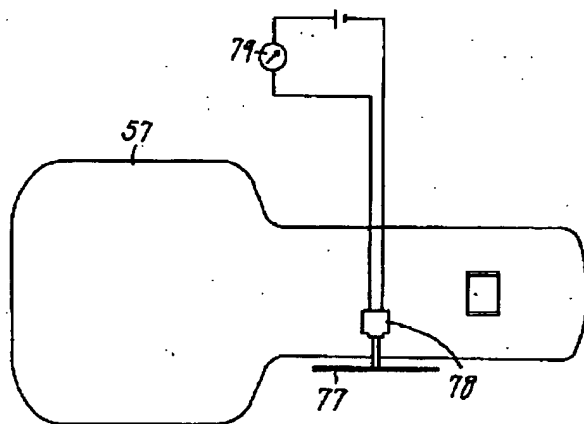
[Drawing 5]



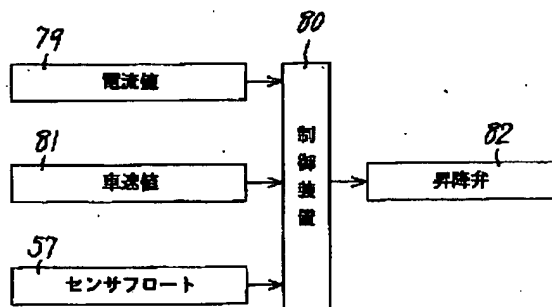
[Drawing 6]



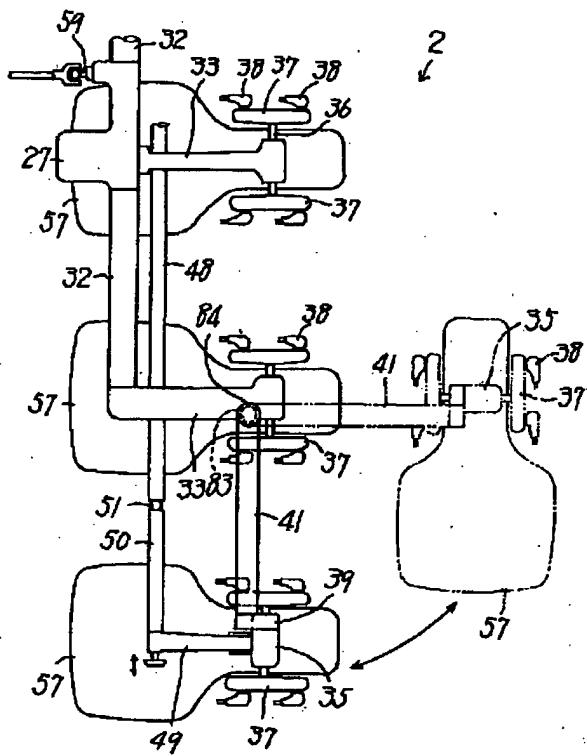
[Drawing 7]



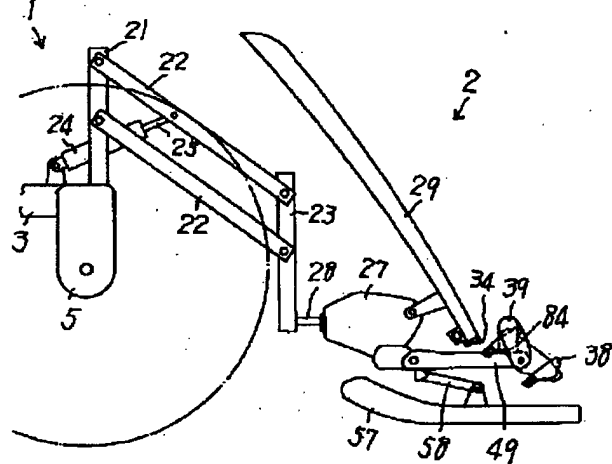
[Drawing 9]



[Drawing 10]



[Drawing 11]



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